

# BANK SELECT — 64K BYTE EXPANDABLE MEMORY BOARD

## DESCRIPTION

The DMB6400 Series random access memory(RAM) boards are S-100 computer bus compatible modules, each containing a dynamic memory array, bus interface/control logic and voltage regulators. On board refresh logic provides all the necessary signals to refresh the memory array without interfering with or cycle stealing from the CPU; this particular refresh technique is referred to as "invisible refresh".

The memory board uses output port addressing for the bank select feature. A switch provides the ability to select any one of the 256 output ports addressing the memory banks. This method of memory bank select is compatible with Alpha Micro, CROMEMCO, North Star, and other systems using output port bank select under software control.

The memory is configured as four independent 16K byte bank selectable sections. Each 16K bytes of addressable memory may be individually set to start at addresses 0000H, 4000H, 8000H or C000H and can be incremented from 16K bytes to 64K bytes in 16K increments, allowing 512K byte memory sizes, for **each** of the 256 output ports.

## SPECIFICATIONS

### MEMORY SIZE

64K bytes, 48K bytes, and 32K bytes. All memory boards are fully socketed for 64K bytes.

### MEMORY BANKS

A 64K byte memory board may be switch selected to have:

- a. Four(4) 16K byte banks, or
- b. Two(2) 32K byte banks, or
- c. One(1) 64K byte bank, or
- d. Combinations of the above

Eight(8) 64K byte memory boards may be used to provide 8 memory banks, each 64K bytes or a total of 512K bytes for each of the 256 output ports.

### MEMORY BANK SELECT

1. RESET — Any of the four(4) 16K byte banks may be switch selected to be turned on with the system RESET signal.
2. SOFTWARE — Any of the four(4) 16K byte banks may be turned on or off under software control using an output port instruction for the output port address selected on the memory board.
3. PHANTOM — Four switches are provided to deselect any of the four banks with the PHANTOM signal.

### MEMORY ADDRESS

Switches are provided to randomly select the starting addresses of each of the four(4) 16K byte banks at 0000H, 4000H, 8000H, or C000H.

### SPEED

4MHz operation with no wait states in 8080 or Z80 systems.

### MEMORY DEVICES

MK4116-3 type 16K x 1 bit, 200nsec, RAMS.

### INPUT SIGNALS AND CONTROL LINES

Inputs are RC filtered and buffered with LS TTL loads. Compatible with terminated or unterminated buses.

### DISC/DMA

Disc compatible. DMA compatible to 1MHz data transfer rate.

### POWER

8 watts maximum with a fully populated 64K byte board.

### OPTION SELECTION

1. Timing selection to assure operation with a wide range of 8080, 8085, or Z80 processors, including the Alpha Micro.
2. PHANTOM memory select for each of the 4 banks. Pin 67 or pin 16 may be selected. PHANTOM pull-up provision may be selected.
3. PWAIT(enable/disable). Selects timing for interfacing different types of disc controllers.

### DOCUMENTATION

Technical manual containing: Schematics, timing diagrams, theory of operation, board description, parts list, layout, option selection, and set-up instructions.

### TESTING

Each board is fully tested, burned-in, and checked for 8080, Z80, and Alpha Micro operation.

### CONSTRUCTION

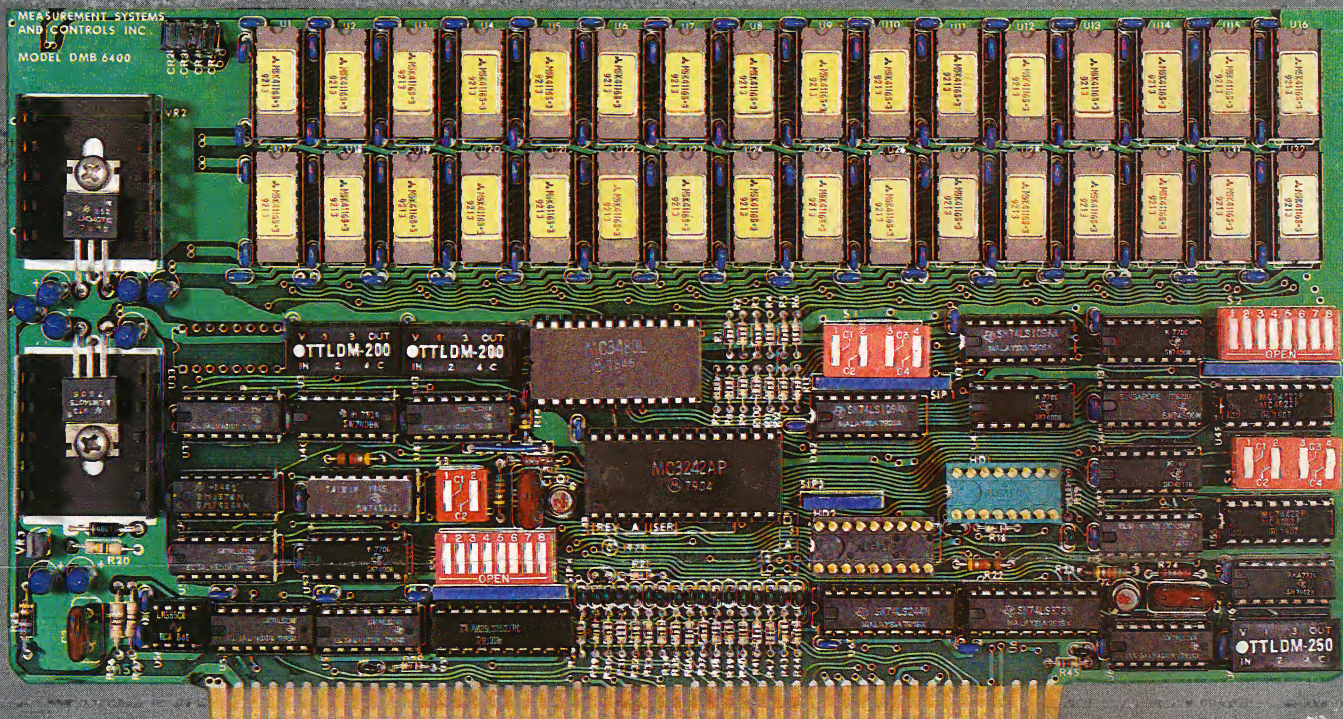
1. Glass epoxy board.
2. Double solder mask over copper.
3. Silk screened legends.
4. Gold plated edge connector.
5. All IC's in double side wipe or gas tight connection sockets.

**GUARANTEED PERFORMANCE ON PARTS AND LABOR FOR ONE YEAR**

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## BANK SELECT — 64K BYTE EXPANDABLE MEMORY BOARD

**FULLY COMPATIBLE WITH:**

**ALPHA MICRO**

**CROMEMCO**

**NORTH STAR**

and most other  
S-100 systems

- Four(4) 16K byte, functionally independent memory banks.
- Eight(8) 16K to 64K byte banks per output port. Expansion to 512K bytes for each output port.
- Z-80 4MHz operation with no wait states.
- Low power — 8 watts maximum.
- Reliable, tested and burned-in, memory.
- **ONE YEAR GUARANTEE**
- IEEE S-100 compatible timing.

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